

Belridge Heavy

Reference ID

Origin: California, USA

API Gravity

13.6

ESD 92

Equation(s) for Predicting Evaporation

$$\%Ev = (0.03 + 0.013T)\sqrt{t}$$

Where %Ev = weight percent evaporated; T = surface temperature ($^{\circ}\text{C}$); t = time (minutes)

ESD 96

Sulphur (weight %)

Evaporation

(volume %)

0

1.03

ESD 93

3

1.03

Water Content (weight %)

Evaporation

(volume %)

0

2.4

ESD 98

3

0.1

Flash Point ($^{\circ}\text{C}$)

Evaporation

(volume %)

0

>90

ESD 92

3

>90

Density (g/mL)

Evaporation

(volume %)

0

Temperature

($^{\circ}\text{C}$)

0

0.9849

ESD 92

15

0.9746

3

0

0.9871

15

0.9770

Pour Point ($^{\circ}\text{C}$)

Evaporation

(volume %)

0

2

ESD 92

3

4

Dynamic Viscosity (mPa·s or cP)

Evaporation

(volume %)

0

Temperature

($^{\circ}\text{C}$)

0

92600

ESD 92

15

12610

3

0

156200

15

17105

Emulsion Formation

Evaporation

(volume %)

0

Visual stability

entrained

ESD 98

Viscosity (mPa·s)

42000

Complex modulus (Pa)

140

Water content (wt %)

54

3

Visual stability

entrained

Viscosity (mPa·s)

47000

Complex modulus (Pa)

200

Belridge Heavy

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Emulsion Formation

Evaporation (volume %)	Water content (wt %)	60	ESD 98
3			

Chemical Dispersibility (volume %)

Evaporation (volume %)	Corexit 9500	4	ESD 97
0	Corexit 9527	9	
	Dasic LTS	0	
	Enersperse 700	0	
3	Corexit 9500	7	ESD 98

Hydrocarbon Groups (weight %)

Evaporation (volume %)	Saturates	28	ESD 96
0	Aromatics	39	
	Resins	30	
	Asphaltenes	3	
	Waxes	1	
3	Saturates	29	
	Aromatics	38	
	Resins	30	
	Asphaltenes	4	
	Waxes	1	ESD 97

Adhesion (g/m²)

Evaporation (volume %)	88	SD = 6	ESD 96
0			
3	83	SD = 2	

Volatile Organic Compounds (ppm)

Evaporation (volume %)	Benzene	110	ESD 94
0	Toluene	0	
	Ethylbenzene	0	
	Xylenes	0	
	C3-benzenes	0	
	Total BTEX	110	
	Total VOCs	110	
3	Benzene	90	
	Toluene	0	
	Ethylbenzene	0	
	Xylenes	0	
	C3-benzenes	0	
	Total BTEX	90	
	Total VOCs	90	

Surface Tension (mN/m or dynes/cm)

Evaporation (volume %)	Temperature (°C)		
0	0	NM	ESD 92
	15	31.2	
3	0	NM	
	15	32.9	

Belridge Heavy

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Oil/Salt Water Interfacial Tension (mN/m or dynes/cm)

Evaporation (volume %)	Temperature (°C)		
0	0	NM	ESD 92
	15	20.0	
3	0	NM	
	15	30.4	

Oil/Fresh Water Interfacial Tension (mN/m or

Evaporation (volume %)	Temperature (°C)		
0	0	NM	ESD 92
	15	25.1	
3	0	NM	
	15	NM	

Boiling Point Distribution (weight %)

Evaporation (volume %)	Boiling Point (°C)	Weight %	
0	160	1	ESD 94
	180	1	
	200	2	
	250	9	
	300	17	
	350	28	
	400	39	
	450	52	
	500	62	
	550	71	
	600	79	
	650	86	
	700	91	
	180	1	
3	200	2	ESD 96
	250	8	
	300	17	
	350	28	
	400	39	
	450	52	
	500	62	
	550	71	
	600	78	
	650	84	
	700	89	

Boiling Point Distribution (°C)

Evaporation (volume %)	Weight %	Boiling Point (°C)	
0	5	ESD 94	
	10		
	15		
	20		
	25		
	30		
	35		
	40		
	45		
	50		

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Reference ID

Boiling Point Distribution (°C)

Evaporation (volume %)	Weight %	Boiling Point (°C)	Reference ID
0	55		
	60		
	65		
	70		
	75		
	80		
	85		
	90		
	95		
3	5		ESD 96
	10		
	15		
	20		
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
	70		
	75		
	80		
	85		
	90		

Metals (ppm)

Barium	0.3	Cao 92
Chromium	<1.5	
Copper	<0.6	
Iron	40.4	
Lead	<3	
Magnesium	5.4	
Molybdenum	<0.6	
Nickel	70.0	
Titanium	<0.6	
Vanadium	86.4	
Zinc	<0.6	

Acute Toxicity of Water Soluble Fraction (mg/L)

48h LC50	Test Organism Daphnia magna	>0.07	(a)	Harris 94
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(a) results based on GC headspace analysis